

WHAT IS CLAIMED IS:

1. A method for fabricating a light source comprising:

5 mounting a chip having a primary light source on a substrate, said primary light source emitting light of a first wavelength;

connecting power terminals on said chip to corresponding power terminals on said substrate for powering said primary light source; and

10 mounting a preformed transparent cap over said chip, said cap comprising a wavelength-converting material for converting a portion of said light of said first wavelength to a second wavelength.

15 2. The method of Claim 1 wherein said primary light source comprises an LED.

3. The method of Claim 1 wherein said primary light source comprises a laser diode.

20 4. The method of Claim 1 wherein said transparent cap comprises a phosphor material suspended in a clear compound.

5. The method of Claim 1 wherein said transparent cap comprises a planar sheet of a single crystal phosphor.

25 6. The method of Claim 1 wherein said transparent cap comprises an inverted cavity, said chip being on a concave side of said cavity.

7. The method of Claim 1 wherein said transparent cap comprises a spherical surface of constant thickness.

30 8. The method of Claim 1 wherein said transparent cap comprises a planar sheet having a constant thickness.

9. A light source comprising:

a chip having a primary light source mounted on a substrate, said primary light source emitting light of a first wavelength, said chip having chip power terminals connected to
5 corresponding terminals on said substrate for powering said primary light source; and

a transparent cap over said chip, said cap comprising a wavelength-converting material for converting a portion of said light of said first wavelength to a second wavelength and for transmitting the portion of said light that is not converted, said transparent cap
10 comprising a layer of wavelength-converting material of a constant thickness.

10. The light source of Claim 9 wherein said transmitted portion of said light is transmitted without scattering more than 50 percent of said transmitted light.

15 11. The light source of Claim 9 wherein said primary light source comprises an LED.

12. The light source of Claim 9 wherein said primary light source comprises a laser diode.

20 13. The light source of Claim 9 wherein said transparent cap comprises a phosphor suspended in a transparent material.

14. The light source of Claim 9 wherein said transparent cap comprises a planar sheet of a single crystal phosphor.

25 15. The light source of Claim 9 wherein said transparent cap comprises an inverted cavity, said chip being on a concave side of said cavity.

30 16. The light source of Claim 9 wherein said transparent cap comprises a spherical surface of constant thickness.